

# HELMINTHOLOGICAL ABSTRACTS

*incorporating*  
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For the Year 1942.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY  
(HELMINTHOLOGY)

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# Bibliography of Phenothiazine as an Anthelmintic.

The first paper on phenothiazine as an anthelmintic (HARWOOD, JERSTAD & SWANSON) appeared in 1938, and since that date a very considerable literature on the subject has been published. In view of the interest which the new anthelmintic has aroused it was considered that a bibliography would be of value. The following list includes all papers on the anthelmintic use of phenothiazine which have come to the notice of this Bureau up to the end of June 1942. It should be noted that technical papers on the chemistry of phenothiazine (Thiodiphenylamine) and on its insecticidal or fungicidal uses are not included.

The bibliography is arranged alphabetically according to authors. Indexes to hosts, and to the helminths against which phenothiazine has been tried, are added. When an abstract of a paper has appeared in Helminthological Abstracts a reference to this is given at the end of the title.

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# HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1942.

Vol. XI, Part I.

## 1—Agricultural Gazette of New South Wales.

- a. ANON, 1942.—“The citrus nematode.” 53 (1), 31-32.
- b. WILSON, R. D., 1942.—“Stem eelworm disease of French beans. First record in New South Wales.” 53 (2), 95-99.

(1a) In New South Wales citrus roots are immune to *Heterodera marioni* but are very commonly infected by *Tylenchulus semipenetrans*. Infestation is usually most severe in light, sandy soil. Manurial and cultural treatment to encourage rapid growth of fibrous roots, especially the incorporation of animal manure in the soil, has a beneficial effect. R.T.L.

(1b) Wilson gives an illustrated account of a disease of dwarf French beans (*Phaseolus vulgaris* L.) caused by the stem eelworm, *Anguillulina dipsaci*, affecting this crop in a certain area of New South Wales. Although Bos reported the dwarf bean as a host of the stem eelworm in 1912, this is the first occasion on which the disease has been found assuming economic importance. On young stems swellings and cracks appear which later on become reddish brown and extend into the cortex whilst on older stems the lesions may extend into the pith. Occasionally pods may become affected. Diseased plants may die but usually remain alive and stunted in growth. They are very liable to become broken off owing to injury to the stem just above ground level. Broad beans and tomatoes growing in the same area were also found affected by the same eelworm but the host range of the parasite on horticultural crops has not been worked out. Control measures suggested include the burning of all diseased bean plants and the omission of dwarf beans from an affected site for 2 to 3 years.

T.G.

## 2—American Naturalist.

- a. CORT, W. W., 1942.—“Human factors in parasite ecology.” 76 (763), 113-128.

(2a) Cort illustrates with numerous examples from parasitology the thesis that human activities, individual or collective, may profoundly modify the ecology of human parasites, often to the parasite's advantage. B.G.P.

## 3—Archives of Pathology.

- a. SCHWARZ, J. & STRAUB, M., 1942.—“Oxyuriasis and appendicitis.” 33 (1), 28-36.

(3a) Schwarz & Straub in Holland examined longitudinal sections of 36 appendices containing *Enterobius vermicularis*. They found 8 of these with no lesions; 22 showing typical lesions of the mucosa, 2 having worms encapsulated in their walls; and in 19 out of the 36 suppurative changes had occurred. M.R.Y.

## 4—Australian Veterinary Journal.

- a. ROBERTS, F. H. S., 1942.—“The host specificity of sheep and cattle helminths, with particular reference to the use of cattle in cleansing sheep pastures.” 18 (1), 19-27.

(4a) The effect on parasitization in sheep of grazing sheep and cattle together, depends in Queensland mainly on the susceptibility of cattle to *Haemonchus* and *Trichostrongylus colubriformis* from sheep, and of sheep to *Haemonchus* and *T. axei* from cattle. Roberts has tested this by grazing worm-free calves on a pasture previously grazed by sheep infested



with 14 species of helminths, 7 of which were acquired by the calves. The calves were largely resistant to sheep *Haemonchus* (but not to the cattle strain) and less so to *Cooperia curticei*. *T. colubriformis* and *Strongyloides* appeared in numbers but did not persist. It is concluded that *Haemonchus* would make it dangerous to use cattle for cleaning sheep pastures, especially as sheep are readily susceptible to the cattle strain. B.G.P.

### 5—British Medical Journal.

- a. MacARTHUR, W. P., 1942.—“Treatment for threadworms.” Year 1942, 1 (4230), p. 171.

(5a) Washing of the hands after defaecation is insufficient to prevent re-infection with *Enterobius vermicularis*. Any article of clothing which has been in contact with the body may infect the hands. MacArthur is of opinion that “the morning cup of tea taken before washing is a potent source of infection”. Strong salt and water is recommended for rectal lavage. The most efficient drug is gentian violet provided auto-infestation is prevented. R.T.L.

### 6—Canadian Medical Association Journal.

- a. MILLER, M. J. & ALLEN, D., 1942.—“Studies on pinworm infections. III. Tests with phenothiazine in the treatment of pinworm infections.” 46 (2), 111–115.

(6a) Miller & Allen have used tablets of chocolate containing 1 g. phenothiazine in 75 children, and soluble-coated gentian violet tablets in 48 children, all infested with *Enterobius*. Gentian violet in 10 daily doses of 1 or 1.5 grains was completely effective in 29 of 48 children and phenothiazine in 6 to 8 daily doses of 1 g. was similarly effective in 32 of 50 children. Twenty-three children given 7 g. phenothiazine in 3 days were all completely cured. On the average there was a reduction in the blood haemoglobin of the phenothiazine cases of 1.5 to 1.6 g. %, maximal between the 7th and 13th day after beginning of treatment, and disappearing in 3 to 4 weeks; not all children showed this reduction. NIH swabs should be taken starting 8 days after completion of treatment since eggs may still be passed 4 days after completion. B.G.P.

### 7—Circular. United States Department of Agriculture.

- a. DIKMANS, G., 1942.—“Internal parasites of cattle.” No. 614, 39 pp.

### 8—Deutsche Tierärztliche Wochenschrift.

- a. SCHMID, F., 1942.—“Phenothiazin als Wurmmittel.” 50 (3/4), 26–28.
- b. DANCKWORTT, P. W., 1942.—“Erhöhter Bleigehalt in niederen Organismen und in Haaren.” 50 (3/4), p. 28.
- c. ROSENBERGER, G. & SLEŠIĆ, M., 1942.—“Distol oder Igitol zur Leberegelbehandlung? Ein vergleichender Behandlungsversuch auf dem Lehrgut Adendorf.” 50 (3/4), 30–33.
- d. KOCK, P., 1942.—“Zum Parasitenbefall des Rehwildes.” 50 (3/4), 36–38.
- e. SCHMID, F. & THIEM, W., 1942.—“Die Wirkung von Wurmmitteln auf die verschiedenen Strongylienarten des Pferdes. III. Arsinsäure.” 50 (5/6), 71–73.
- f. LÁSZLÓ, F., 1942.—“Finnen in den Lymphknoten.” 50 (7/8), p. 83.
- g. WETZEL, R., 1942.—“Biologische Grundlagen der Bekämpfung parasitischer Würmer.” [Abstract of a paper presented at a meeting of the Berliner Tierärztliche Gesellschaft, February 1942.] 50 (13/14), p. 153.
- h. SCHMID, F. & BÜHNER, F., 1942.—“Die Wirkung von Wurmmitteln auf die verschiedenen Strongylienarten des Pferdes. IV. Perequid-Tabletten und V. Noëmin.” 50 (17/18), 186–187.

(8a) Schmid has tested the small quantity of phenothiazine available to him against *Capillaria* in fowls and nematodes in sheep. He finds a dose of 0.5 g. in a 1 kg. fowl satisfactory. Doses of only 1 g. and 2 g. were tried in sheep, but even these gave promising results. B.G.P.

(8b) Commenting on the high lead content of certain yeasts and mammalian hair, Danckwortt mentions that a mass of tapeworms from the caecum of a foal contained 17.9 mg. lead per 100 g.; the foal's liver contained 0.33 mg. per 100 g. B.G.P.

(8c) Rosenberger & Slesić report on a systematic but circumscribed campaign against *Fasciola hepatica* in cattle, involving both preventive measures of the usual kind and simul-



taneous therapy with hexachlorethane in 88 infested cattle. Of the two forms of this drug used, Igitol was cheaper than Distol, was given in a single dose as against 2 or 3 doses, and was equally effective. B.G.P.

(8d) Kock tabulates the ecto- and endoparasites of 23 roe deer examined between February and August, 1940, in the Höxter district. No animal was free from helminths, the commonest being (in order of incidence) *Nematodirus*, *Chabertia*, *Trichuris*, *Cysticercus tenuicollis*, *Ostertagia*, and *Haemonchus*. B.G.P.

(8e) Schmid & Thiem have tested intravenously, against strongyles in 10 horses, the I.G. Farbenindustrie preparation "4002" (Arsonic acid) giving 100 c.c. of 10% solution and using as criteria the pre- and post-treatment egg-counts with differentiation of larval forms into *Trichonema* and the 3 spp. of *Strongylus*. They found the drug highly efficacious in a single injection, especially against *Strongylus*. While a double injection gave no improvement, the best results were obtained from the simultaneous oral administration of Allegan, which is specially effective against *Trichonema*. B.G.P.

(8f) László reports an average of one pig per annum infested with *Cysticercus* out of the 9,000 to 20,000 examined annually during the past 10 years at the Hungarian abattoir at Győr. One 6-months-old pig was very heavily infested, even the lymph nodes being parasitized—mainly in the cortex, and causing no enlargement. B.G.P.

(8g) Wetzel points out that the prepatent period of helminths (between infestation and sexual maturity) must be considered in relation to treatment, especially with parasites like *Fasciola* and *Strongylus* which are not reached by drugs during this period. B.G.P.

(8h) Using the same technique as before [see above No. 8e] Schmid & Bühner have tested Perequid tablets and Noëmin against horse strongyles, using 4 horses and 1 control for each drug. Doses are not stated. Perequid has moderate efficacy against *Trichonema*, less against *Strongylus*. Noëmin is without effect. B.G.P.

## 9—East African Agricultural Journal.

a. NATTRASS, R. M., 1942.—"Notes on plant diseases. Eelworm on potato tubers." 7 (3), p. 166.

(9a) This is a description of nodules on potato tubers caused by *Heterodera marioni*, and some notes on the disease. M.T.F.

## 10—Journal of Agricultural Research.

a. KATES, K. C., 1942.—"Viability of eggs of the swine thorn-headed worm (*Macracanthorhynchus hirudinaceus*)."  
64 (2), 93-100.

(10a) Kates reports on the effects on the eggs of *Macracanthorhynchus hirudinaceus* of high temperatures, freezing, drying, alternate wetting and drying and ultraviolet radiation. The infectivity of the eggs to the grubs of *Cotinis nitida* was the criterion adopted. In water the eggs were instantaneously destroyed at 70° C. and after 10 minutes at 60° C. They survived continuous exposure for up to 140 days both in water and in a dried condition at -10° C. to -16° C. Dry preparations survived 50 days at 5° to 9° C. and 37° to 39° C. and for 265 days at 21° to 26° C. When alternately wetted and dried the viability of eggs on soil was destroyed in 368 days at temperatures of 37° to 39° C. but at 2° to 5° C. they survived 551 days. Dry eggs in a single layer were killed in 10 minutes by ultraviolet rays applied at a distance of 18 inches, but in shallow water some eggs survived 120 minutes. R.T.L.

## 11—Journal of the American Veterinary Medical Association.

- a. KOUTZ, F. R. & REBRASSIER, R. E., 1942.—"The incidence of parasitic infection in domestic animals." 100 (780), 214-216.
- b. SMITH, C. H., 1942.—"Internal worm parasites of cattle in Northern Indiana." 100 (780), 220-221.
- c. WRIGHT, J. C., 1942.—"Small animal hospitalization, sanitation and parasite control." 100 (780), 229-232.
- d. RIETZ, J. H., 1942.—"Was phenothiazine responsible?" 100 (781), p. 360.

(11a) The incidence is recorded of helminths in 1,832 animals received during 1940-41 at the veterinary clinic of the Ohio State University. Of 1,486 dogs 25.57% had *Trichuris vulpis*, 17.22% had *Ancylostoma caninum*, 16.09% had *Toxocara canis*, 5.25% had *Toxascaris leonina*, 4.38% had *Dipylidium caninum*, and 2.69% had *Taenia pisiformis*. Two cases of *Diphyllobothrium latum* were observed and treated. Of 104 dogs examined for *Dirofilaria immitis* 20.19% were positive. Of 83 cats 37.35% had ascarids, 6.02% had *Ancylostoma caninum*, 2.41% had *Trichuris campanula*, and 1.2% had *Taenia taeniaeformis*. Eighty-four horses showed eggs of strongyles in 97.62%, those of *Ascaris equorum* were present in 33.33% while eggs of *Anoplocephala magna* occurred in two samples. The incidence of more than one species in these different hosts is tabulated. R.T.L.

(11b) [For abstract of this paper see Helm. Abs., Vol. X, No. 142a.]

(11c) Pregnant dogs with hookworm should be wormed every week until the faeces are negative for ova. Sometimes blood transfusions are beneficial both before and after treatment. The white coloured *Toxascaris leonina* is more prevalent in older dogs while the yellow *Toxocara canis* generally infests puppies. *Dirofilaria immitis* is an increasingly serious problem and has spread from the southern United States to Canada. As a preventive of *Spirocerca sanguinolenta*, infected animals should be isolated and their vomitus and faeces disposed of. Healthy dogs and cats should not be permitted to eat mice, lizards, frogs, beetles or dung. R.T.L.

(11d) Rietz reports symptoms of inco-ordination in all of 16 pigs given 5 g. phenothiazine when 4 weeks old, two of which died without showing diagnostic lesions, and also in 4 of 41 pigs given the same dose at the same age. These pigs were given a second dose of 6 g. at 8 weeks old, and all 45 developed a severe dermatitis resembling scabies; 7 which died showed a necrotic enteritis of caecum and colon. Few parasites other than *Trichuris* were present, and no mites in the skin. A further 41 pigs, given chenopodium instead of phenothiazine and reared in the same house as the former, showed neither dermatitis nor enteritis. B.G.P.

## 12—Journal of the Department of Agriculture. Victoria.

- a. NICOL, G., 1942.—"Hydatid disease of animals and man." 40 (1), 26-27.
- b. ANON, 1942.—"Shortage of materials for worm drenches." 40 (3), p. 130.

(12b) In Australia nicotine sulphate, carbon tetrachloride and tetrachlorethylene are now in short supply. Phenothiazine supplies are very restricted and expensive but bluestone and arsenic are still available. Bluestone or bluestone-arsenic mixture is recommended for *Haemonchus contortus*, bluestone-nicotine mixture for *Trichostrongylus*. Enema treatment is very effective for *Oesophagostomum columbianum*. In the bluestone-arsenic mixture the hydrochloric acid can be replaced by sodium bisulphate to dissolve the greenish sediment. The dosage of this mixture is 30 c.c. for grown sheep, 25 c.c. at 12 to 18 months, 15 c.c. at 8 to 12 months, 10 c.c. at 4 to 8 months and 8 c.c. for lambs under 4 months. R.T.L.

## 13—Journal of Parasitology.

- a. ACKERT, J. E., 1942.—"Natural resistance to helminthic infections." 28 (1), 1-24.
- b. BRACKETT, S., 1942.—"Five new species of avian schistosomes from Wisconsin and Michigan with the life cycle of *Gigantobilharzia gyrauli* (Brackett, 1940)." 28 (1), 25-42.
- c. BYRD, E. E. & REIBER, R. J., 1942.—"Strigeid trematodes of the alligator, with remarks on the prostatic gland and terminal portions of the genital ducts." 28 (1), 51-73.
- d. OLIVIER, L. & CORT, W. W., 1942.—"An experimental test of the life cycle described for *Cotylurus communis* (Hughes)." 28 (1), 75-81.
- e. ROTHSCHILD, M., 1942.—"A further note on life history experiments with *Cryptocotyle lingua* (Creplin, 1825)." 28 (1), 91-92.
- f. ISHII, N., 1942.—"New parasite records from the ruffed grouse." 28 (1), p. 92.
- g. HAWKINS, P. A., 1942.—"*Sigmodon hispidus hispidus*, a new host for the strobilocercus of *Taenia taeniaeformis*." 28 (1), p. 94.
- h. SAWITZ, W., 1942.—"The buoyancy of certain nematode eggs." 28 (2), 95-102.
- i. PENNER, L. R., 1942.—"Studies on dermatitis-producing schistosomes in Eastern Massachusetts, with emphasis on the status of *Schistosomatium pathlopticum* Tanabe, 1923." 28 (2), 103-116.



- j. HARKEMA, R., 1942.—"*Pharyngostomoides procyonis* n.g., n. sp. (Strigeida) a trematode from the raccoon in North Carolina and Texas." 28 (2), 117-122.
- k. GLASER, R. W., McCOY, E. E. & GIRTH, H. B., 1942.—"The biology and culture of *Neoplectana chresima*, a new nematode parasitic in insects." 28 (2), 123-126.
- l. BUTLER, jr., R. L. & CHRISTENSON, R. O., 1942.—"A simple apparatus for determining the viability of embryonated helminth ova." 28 (2), 131-134.
- m. CHANDLER, A. C., 1942.—"Helminths of tree squirrels in Southeast Texas." 28 (2), 135-140.
- n. POLK, S. J., 1942.—"*Hymenolepis mastigopraedita*, a new cestode from a pintail duck." 28 (2), 141-145.
- o. TUCKER, H., 1942.—"*Nematodirus tortuosus* n. sp. (Nematoda) from the rat, *Neotoma*." 28 (2), 159-163.
- p. WALTON, A. C., 1942.—"*Paralaeuris cuckleri* n. sp. (Nematoda) from the iguana (*Cyclura cornuta*)." 28 (2), 165-166.
- q. FISCHTHAL, J. H., 1942.—"A *Paragordius* larva (Gordiaceae) in a trematode." 28 (2), p. 167.
- r. WHITLOCK, J. H., 1942.—"Studies upon *Strongylus vulgaris*. VI. Tests with organic copper salts." 28 (2), 168-169.
- s. SUMMERS, W. A., 1942.—"Intestinal parasites in boys of the Florida Industrial School." 28 (2), 169-170.

(13a) The degree of natural resistance of a host to its helminths depends largely on the diet, genetic constitution and age of the host. A balanced ration with adequate amount of vitamins A, B and D and the minerals and proteins supplied by cereals, meat and milk will ordinarily develop a high resistance. This natural resistance is probably due to the inhibition of helminth development by a thermostable substance produced by the goblet cells of the duodenal mucosa. R.T.L.

(13b) To the 10 species of schistosomes previously reported in birds in the vicinity of Wisconsin, 5 undescribed species are now added, viz., *Pseudobilharziella waubesensis* n. sp., *P. kegonsensis* n. sp., *P. horiconensis* n. sp., *P. burnetti* n. sp., all from *Nyroca* spp., and *Gigantobilharzia lawayi* n. sp. from *Larus* spp. A key is given for the males of the 8 species of *Pseudobilharzia*. The paper also includes a description of *Gigantobilharzia gyrauli* from blackbirds and its life history and distribution and a key to the males of this genus. R.T.L.

(13c) From the small intestine of *Alligator mississippiensis* 5 strigeids are described including *Pseudoneodiplostomum acetabulata* n. sp., and a new genus of Polycotylinae, viz., *Pseudocrocodilicola* with *P. americanense* n. sp. and *P. georgiana* n. sp. The origin and function of the prostate gland is discussed. R.T.L.

(13d) Olivier & Cort have demonstrated by infection experiments that the cercaria described by Van Haitsma (1930) is not that of *Cotylurus communis*, but develops in the eyes of perch into diplostomula similar to those of *Diplostomum flexicaudum*. Since the larvae occur chiefly in the peripheral portions of the retina and cause little damage they probably do not interfere with vision to any serious extent. R.T.L.

(13e) When black-headed gulls were fed with gobies naturally infected with metacercariae of *Cryptocotyle lingua* the adult worms were more normal and more in agreement with published descriptions than those recovered after feeding with metacercariae developed experimentally. R.T.L.

(13f) A few specimens of *Lyperosomum monenteron* and *Echinoparyphium acomiatum* occurred in *Bonasa umbellus* in Minnesota. R.T.L.

(13h) The eggs of *Enterobius vermicularis* are buoyed up in solutions of zinc sulphate with a specific gravity of 1.115 and upwards. At 1.180 the surface layer gave 97% of the total number of eggs and 70% on the first coverglass preparation. At the same specific gravity almost all the fertilized eggs of *Ascaris lumbricoides* were floated and the first coverglass preparation gave from 57% to 79% while at 1.200 specific gravity the first coverslip preparation gave 94% of the fertilized eggs and only 39% of those unfertilized; at 1.250 specific gravity the recovery of unfertilized eggs rose to 99%. Of *Trichuris trichiura* eggs in a solution of 1.180 specific gravity 85% occurred in the surface layer and 52% in the first coverglass preparation while with 1.200 specific gravity the yields rose to 99% and 90% respec-

tively. 92% of *Ancylostoma caninum* eggs floated in a specific gravity of 1.150 and 100% in 1.180 specific gravity with 87% in the first coverglass preparation. These differences in specific gravities of the eggs suggest that a differential flotation technique is possible. R.T.L.

(13i) An examination of Tanabe's original preparations shows that *Schistosomatum pathlopticum* is a synonym of *S. douthitti*. Extensive collecting of freshwater gastropods in Eastern Massachusetts failed to reveal schistosome infections except for an immature schistosome infection, not of the *Schistosomatum* type, in one *Physella heterostropha*. R.T.L.

(13j) From 14 out of 23 *Procyon lotor* of North Carolina thousands of small strigeids were collected. A description of *Pharyngostomoides procyonis* n.g., n. sp. is given. This new genus is separated from *Pharyngostomum* as the latter has a very large pharynx and piriform holdfast organ and lacks pseudosuckers. R.T.L.

(13k) Glaser, McCoy & Girth give an account of the biology and culture of a new nematode, *Neoaplectana chresima* Steiner (a full description of which is to be published shortly), found parasitic in the larvae of the Japanese beetle, *Popillia japonica*, and in pupae of the corn-earworm, *Heliothis armigera*. Other insects were found capable of harbouring the worm under experimental conditions. The chief features in which the new species differs from *Neoaplectana glaseri* are briefly set out. The worms have been successfully cultured, under sterile conditions, on a beef liver or a beef kidney medium but contamination of such cultures with bacteria has a deleterious effect on the worms. T.G.

(13l) The only test of viability in embryonated eggs is motility. An apparatus is described whereby the heat from a 150-watt electric bulb is used. This gave excellent results with embryonated eggs of *Heterakis gallinae* and *Ascaridia galli* from cultures nearly two years old. R.T.L.

(13m) Of 13 *Sciurus niger rufiventer* 61% gave *Raillietina bakeri* n. sp., 8% gave *Cysticercus tenuicollis*, 85% gave *Strongyloides robustus* n. sp., 100% gave *Heligmodendrium hassalli*, 8% *Microfilaria alpha* n. sp., and 8% *Mf. beta* n. sp. Of 4 *Sciurus carolinensis carolinensis* 50% had *Strongyloides robustus* and 100% had *Heligmodendrium hassalli*; the other parasites of *S. niger* were not present. *S. robustus* is the largest species of the genus except *S. westeri* of horses; it resembles *S. papillosus*. R.T.L.

(13o) *Nematodirus tortuosus* n. sp. is described from the rats *Neotoma lepida intermedia* and *N. fuscipes macrotis* at Los Angeles. The new species is most closely related to *N. aspinosus*, but the female has no process on the tail and the eggs are larger. R.T.L.

(13q) A single larva of a Paragordius occurred in the parenchyma of a trematode, closely resembling *Plagioporus sinitsini*, from *Hypentelium nigricans*. This is the second record of the occurrence of a gordiacian larva in a trematode. R.T.L.

(13r) Exposure of female *Strongylus vulgaris* to various copper salts in warm 0.85% NaCl for 100 minutes showed that copper tartrate is effective in killing this species *in vitro*. Copper formate is much more effective than copper sulphate and is not inactivated by sodium bicarbonate. The organic copper salts, unlike the inorganic, need not be water soluble to be effective either *in vitro* or *in vivo*. R.T.L.

#### 14—Journal of Tropical Medicine and Hygiene.

- a. ESTRADA, J. & GARCIA, E., 1942.—“*Ascaris lumbricoides* in the common bile-duct: report of a case.” 45 (5), 33–36.

(14a) [This paper appeared originally in J. Philipp. Med. Ass., 1941, 21, 331–336. See Helm. Abs., Vol. X, No. 257a.]

#### 15—Lancet.

- a. ANON, 1942.—“A death after phenothiazine.” Year 1942, 1 (6177), p. 86.  
b. BRAILSFORD, J. F., 1942.—“Unrecognized cysticercosis.” Year 1942, 1 (6178), 127–128.

(15a) This is a report of the inquest on a child of 6 years of age who died of acute haemolytic anaemia after taking phenothiazine for suspected threadworms. The total dose of



8.5 g. was administered over a period of 5 days. A drip transfusion given after admission to hospital was not associated as a cause of death. R.T.L.

(15b) Brailsford points out that it is rare to obtain radiographical evidence of cysticerci in the brain in patients with symptoms of central nervous disease. The more important symptoms occur at the time of infestation and during the development of the parasite. R.T.L.

#### 16—Nature. London.

- a. STEPHENSON, W., 1942.—“Resistance of a soil nematode to changes in osmotic pressure.” 149 (3783), p. 500.

(16a) As with parasitic nematodes the cuticle of *Rhabditis* sp.? has been shown by Stephenson to be relatively unimportant as an insulating covering. The resistance to changes in osmotic pressure is rather due to an active method of osmotic regulation. R.T.L.

#### 17—North American Veterinarian.

- a. SIMMS, B. T., BOUGHTON, D. C. & PORTER, D. A., 1942.—“Scours in dairy calves, with special reference to white scours, coccidiosis and verminous gastroenteritis.” 23 (3), 176–181.
- b. McADORY, I. S., 1942.—“The practical use of phenothiazine as an anthelmintic for large animals.” 23 (3), 182–183.
- c. SWANSON, L. E., 1942.—“Phenothiazine as an anthelmintic for removal of gastrointestinal parasites of sheep and calves.” 23 (3), 184–185.
- d. HABERMANN, R. T. & SHORB, D. A., 1942.—“The effect of phenothiazine-salt mixtures on the development of parasite larvae in the feces of sheep.” 23 (5), 318–321.

(17a) Discussing diarrhoea in calves due to bacteria, protozoa and helminths, Simms et al. explain that helminthic scouring is the last to appear in point of time, not occurring before the age of 4 months. The faeces are dark, watery, and free from blood. The smaller trichostrongylids are mainly responsible and experiments show that *Haemonchus*, while causing anaemia and poor condition, does not produce diarrhoea. Pasture rotation, the avoidance of wet pastures, and treatment with phenothiazine are recommended. B.G.P.

(17b) McAdory suggests that the dosing of animals with phenothiazine or other anthelmintic should be carefully graded according to the general health and parasite-burden of the host. The use of phenothiazine should at present be confined to animals other than horses and mules. B.G.P.

(17c) Recommending phenothiazine for sheep and cattle, Swanson reports that sheep given phenothiazine at monthly intervals showed fewer deaths from parasitism, a heavier wool-clip, and greater weight gains. Cattle given from 30 g. to 80 g. show comparable improvements. In both cases, stomach worms respond most. B.G.P.

(17d) Habermann & Shorb find that licks composed of salt and phenothiazine in proportions from 9 : 1 to 14 : 1 are largely effective in preventing the development of larvae of sheep helminths in the faeces : higher proportions of phenothiazine make the lick so unpalatable that insufficient is consumed, and lower proportions are ineffective. A minimum daily consumption of 0.5 g. phenothiazine is necessary. B.G.P.

#### 18—Phytopathology.

- a. GODFREY, G. H., 1942.—“Fumigation of potting soils.” [Abstract of a paper presented at the 33rd Annual Meeting of the American Phytopathological Society, Dallas, Texas, December 29, 1941 to January 1, 1942.] 32 (1), p. 22.
- b. CHITWOOD, B. G. & NEWHALL, A. G., 1942.—“The efficacy of certain nematocides in the control of onion bloat in muck soil.” 32 (3), 254–258.

(18a) Godfrey reports that potting soils can be freed from *Heterodera marioni* and *Pratylenchus pratensis* as well as damping-off and root-rot fungi by fumigating them with chloropicrin or methyl bromide at the rate of 4 ml. per cubic foot of soil. Carbon disulphide and ethylene chloride at the rate of 10 ml. per cubic foot of soil, whilst killing the nematodes, are not so efficient against fungi. Methyl bromide fumes can penetrate undecayed

nematode root galls. Galvanised cans or gas-tight boxes are suitable containers for soil fumigation which should be carried out whilst the temperature is high and the soil should be loose and not too wet. T.G.

(18b) Chitwood & Newhall have tested the efficacy of certain chemicals for the control of "bloat" disease of onions caused by the stem nematode, *Ditylenchus dipsaci*. Sulphur applied in the autumn has no significant value as a nematocide and when applied in heavy dressings seriously reduces the subsequent crop. Chloropicrin injected into the soil in 2 c.c. doses in holes 6 inches deep and spaced 9 by 10½ inches apart significantly reduced the incidence of disease. A mixture of chloropicrin and ethylene chloride 1 : 9 at a dosage of 10 c.c. per hole 6 inches deep and 9 by 10½ inches apart eradicated the disease completely. T.G.

## 19—Post-Graduate Medical Journal.

- a. VEVERS, G. M., 1942.—"The progress of helminthology in the U.S.S.R." 18 (194), p. 11.

## 20—Poultry Science.

- a. LUTTERMOSER, G. W. & ALLEN, R. W., 1942.—"The influence of diets high and low in protein on the growth rates of chickens infected with the tapeworm, *Raillietina cesticillus*." 21 (2), 111-115.

(20a) Luttermoser & Allen find that a high protein diet counteracts the ill effects of *Raillietina cesticillus* infection in chickens, when increase in weight is the criterion. Infected chickens fed 26% protein gained weight at the same rate as the uninfected controls. When however the protein content of the diet was limited to 13%, then the uninfected control chickens had a greater increase in weight over a period of 6 weeks than did the infected ones. There seemed to be no correlation between the intensity of infection and the retardation of growth. P.A.C.

## 21—Proceedings of the Helminthological Society of Washington.

- a. WALTON, A. C., 1942.—"Some oxyurids from a Galapagos tortoise." 9 (1), 1-17.
- b. FOSTER, A. O. & SHAHAN, M. S., 1942.—"Unsuccessful attempts to transmit encephalomyelitis from horses to guinea pigs by endoparasites." 9 (1), 20-21.
- c. SPINDLER, L. A., 1942.—"Effectiveness of a method of raising experimental pigs free from worm parasites." 9 (1), 22-23.
- d. NOLAN, M. O. & JONES, M. F., 1942.—"Studies on oxyuriasis. XXVII. Notes on the survival of eggs of *Enterobius vermicularis* exposed to household fumigants." 9 (1), 23-25.
- e. OTTO, G. F., SCHUGAM, N. J. & GROOVER, M. E., 1942.—"A precipitin reaction resulting from *Necator americanus* larvae in sera from hookworm-infected individuals." 9 (1), 25-26.
- f. AVERY, J. L., 1942.—"An apparatus for the warm-air drying of a water suspension of ground trichina larvae for use as an antigen." 9 (1), 26-27.
- g. MAYHEW, R. L., 1942.—"A preliminary note on the length of life of the stomach worm, *Haemonchus contortus* in the calf." 9 (1), p. 28.
- h. DENTON, J. F., 1942.—"*Eurytrema procyonis* n. sp. (Trematoda: Dicrocoeliidae), from the raccoon, *Procyon lotor*." 9 (1), 29-30.
- i. PRICE, E. W., 1942.—"A new trematode of the family Psilostomidae from the lesser scaup duck, *Marila affinis*." 9 (1), 30-31.
- j. BEAVER, P. C., 1942.—"*Aequistoma*, nom. nov. for *Pseudechinostomum* Shchupakov, 1936, preoccupied by *Pseudechinostomum* Odhner, 1911." 9 (1), p. 31.
- k. STEINER, G., 1942.—"Opuscula miscellanea nematologica, IX." 9 (1), 32-38.

(21a) Walton gives a list of recorded hosts and a useful key for the determination of 19 of the Oxyuroidea genera which commonly occur in reptiles. "Oxyuris" is not included nor are those forms based on "females only". A new genus and 5 new species are described from a Galapagos land tortoise (*Testudo* sp.), viz., *Pseudoalaeuris macroptera* n.g., n. sp., *P. auricularis* n. sp., *P. pharyngodentata* n. sp., *Thaparia contortospicula* n. sp. and *Tachygonetria testudinis* n. sp. R.T.L.

(21b) The experiments recorded are considered to have been sufficient to justify the authors in concluding that the parasites tested were probably incapable of transmitting the virus of equine encephalomyelitis. R.T.L.



(21c) A few days before farrowing the sows were washed with soap and warm water and then transferred to concrete pens with rounded corners. The pens had been cleaned with hot water under pressure by hose and allowed to dry for 24 hours. R.T.L.

(21d) Fumigation with hydrocyanic acid, paradichlorobenzene and naphthalene failed to kill the eggs of *Enterobius vermicularis*. R.T.L.

(21e) The precipitin reaction, first described by Sarles in 1938 as occurring with the infective larvae of *Nippostrongylus muris* when placed in the sera of immunized rats, has been demonstrated by the authors to occur with living hookworm larvae in human "immune" sera. R.T.L.

(21g) The eggs of *Haemonchus contortus* were present over a period of 14 months 15 days in a laboratory infected calf, but the number of eggs present had gradually decreased to a very low count. R.T.L.

(21i) Price describes *Psilostomum marilae* n. sp. from *Marila affinis*. It is differentiated from *P. progeneticum* by the fact that the yolk glands only extend as far as the level of the genital pore. The 8 species of the genus are listed. *P. arvicolae* and *P. reflexae* are doubtful members of the genus. R.T.L.

(21k) The common waxplant, *Hoya carnosa*, is reported as a new host for *Heterodera marioni*. The roots of the infected plant were heavily infected and showed considerable cracking and decay. The knots were small but numerous. Associated with this infection was *Diploscapter pachys* n. sp. which had obtained access to the root cells through the cracks caused by *H. marioni*. Steiner also describes 3 species, *Aphelenchoides alni* n. sp., *A. oregonensis* n. sp. and *Aphelenchus macrobolbus* n. sp. in the mines and frass caused by certain bark beetles in the Oregon alder (*Alnus rubra*). R.T.L.

## 22—Proceedings of the Society for Experimental Biology and Medicine.

- a. BRAND, T. VON. & SIMPSON, W. F., 1942.—"Physiological observations upon larval Eustrongylides. III. Culture attempts *in vitro* under sterile conditions." 49 (2), 245-248.

(22a) Von Brand & Simpson have cultured Eustrongylides larvae from *Fundulus heteroclitus* in a number of media under aseptic conditions. Best results were: (i) one larva survived 346 days in Bacto yeast extract, NaCl, glucose (each 0.5%); (ii) a group of 8 survived 157 days in Bacto-broth 0.8%, NaCl and glucose each 0.5%. In both cases temperature was 37.5° C. and the medium was renewed every 4 to 8 days. The larvae, which did not grow, moult, or develop, produced acids. B.G.P.

## 23—Proceedings of the United States National Museum.

- a. CHANDLER, A. C., 1942.—"Some cestodes from Florida sharks." 92, 25-31.

(23a) *Thysanocephalum rugosum* n. sp. is described from *Galeocerdo arcticus*. While strikingly similar to *T. thysanocephalum* it differs in size and shape of the segments and in the reticulations of the cuticle. *Diplobothrium springeri* n.g., n. sp. comes from *Platysqualus tudes*. It has double sets of reproductive organs but does not belong to *Dibothriorhynchus*. A specimen of *Dasyrhynchus insigne* Linton was obtained from *Carcharias platyodon*. In a note on the tetrarhynchidean larvae previously described by him in 1935 the author now refers his specimens of *Gymnorhynchus gigas* to *Pterobothrium filicollis* and *G. malleus* to *P. malleum*. The specimen recorded as *Tentacularia lepida* is transferred to the genus *Callotetrarhynchus* Pinter, 1931. R.T.L.

## 24—Revista Brasileira de Biologia.

- a. FREITAS, J. F. TEIXEIRA DE & LENT, H., 1942.—"A-proposito-de *Halltrema avitellina* Lent & Freitas 1939." 2 (1), 115-116.

(24a) Freitas & Lent amplify their description of *Halltrema avitellina*. They have found specimens showing two vitelline glands extending from the region of the genital pore anteriorly to the tips of the caeca posteriorly. At first they are extracaecal, later intracaecal and finally they invest the caeca. They also describe a long sperm duct, which is the modified terminal portion of the uterus. P.A.C.



## 25—Soil Science.

- a. LINFORD, M. B., 1942.—“Methods of observing soil flora and fauna associated with roots.” 53 (2), 93–103.

(25a) Linford describes methods he has developed for the direct observation, under the microscope, of nematodes and other soil organisms associated with the roots of plants, in a living condition. Root observation boxes are used in which a special window is made by cementing a coverslip over a suitable aperture in the side. Under carefully arranged incident illumination objects may be viewed at magnifications up to 900 diameters. He also gives particulars of a method for fixing and staining soil organisms associated with the rhizosphere without first washing away the soil. T.G.

## 26—South African Medical Journal.

- a. CARLISLE, V., 1942.—“The pathology of schistosomiasis of the appendix and its relation to appendicitis.” 16 (1), 17–23.

## 27—Tierärztliche Rundschau.

- a. REMIEN, 1942.—“Bluttransfusionen zur Behandlung der parasitären Anaemie sowie der traumatischen Anaemie der Pferde.” 48 (11/12), 91–95.  
b. BUGGE, G., 1942.—“Das sogen. Muskeldistomum, *Agamodistomum suis*, ein Bewohner der Bauchhöhle des Schweines.” 48 (17/18), 146–150.

(27a) Remien discusses the treatment of parasitic and traumatic anaemia in horses by means of drugs and by transfusion, of which the procedure is detailed. B.G.P.

(27b) Reporting on 7 cases of the so-called *Agamodistomum suis*, which occurs very rarely in wild pigs and still more rarely in domesticated pigs, Bugge is concerned to show that these larval flukes are parasites of the body-cavity rather than of the muscles. Thus, they are not encapsulated as figured by Leuckart, and when they appear in the trichinoscope along with portions of diaphragm or other muscle they are nearly always lying free on the surface, having been washed there by the peritoneal fluid. B.G.P.

## 28—Transactions of the American Microscopical Society.

- a. FISCHTHAL, J. H. & ALLISON, L. N., 1942.—“*Acolpenteron catostomi* n. sp. (Gyrodactylidae: Calceostomatidae), a monogenetic trematode from the ureters of suckers, with observations on its life history and that of *A. ureteroecetes*.” 61 (1), 53–56.  
b. PETRI, L. H., 1942.—“Two new microcoeliid trematodes from birds.” 61 (1), 57–61.

(28a) Fischthal & Allison describe the second species of *Acolpenteron* from the urinary system of American fresh-water fishes, namely, *A. catostomi* n. sp. from the ureters of *Catostomus commersonnii* and *Hypentelium nigricans* from Michigan. Infected specimens of *Catostomus* were kept under controlled conditions (free from invertebrates) for 6½ months, and at the end of that time some very young worms were found in the upper parts of the ureters. *Huro salmoides* infected with the type species, *A. ureteroecetes*, was kept under similar conditions for 7 months and these also harboured very young worms in the upper ureters at the end of the period. These results are taken as a proof that the life-cycle is direct. The ciliated larva is described. N.G.S.

(28b) Petri describes two new species of microcoeliid trematodes from birds. (i) *Eurytrema ludoviciana* n. sp. from the liver of *Zamelodia ludoviciana* from Nebraska. It resembles the larger species, *E. illiciens*, in some respects, and also *Paradistomum magnum* in others. The latter species, among a few others, differ from the typical members of *Paradistomum* in having narrow caeca, and on these grounds it is suggested that they be removed to *Eurytrema*, reserving the former genus for species with wide caeca. *Paradistomum magnum* Travassos, 1919, is transferred to *Eurytrema*. (ii) *Athesmia butensis* n. sp. occurs in the intestine of *Buteo galapoensis* from the Galapagos Islands. It is similar to *A. rudecta* [see Helm. Abs., Vol. X, No. 91c] and to *A. attilae*, only differing in egg size (it is possible that these two species may prove to be identical); the ovary of *A. butensis* is variable—it may be lobed (as in the type specimen) or not. N.G.S.



## 29—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. EARLE, K. V., 1942.—“Filariasis of the breast: a mammographic survey.” 35 (4), 235-236.
- b. MANSON-BAHR, P., 1942.—“Zoological nomenclature as applied to medical zoology, parasitology and bacteriology.” [Correspondence.] 35 (4), 237-239.
- c. GELFAND, M., 1942.—“The diagnosis of bilharziasis in Southern Rhodesia.” 35 (5), 281-288.

## 30—Veterinary Record.

- a. TAYLOR, E. L., 1942.—“The epidemiology of parasitic bronchitis among cattle.” (2), 15-17. [Discussion in Vet. Rec., 54 (8), 88-90.]
- b. TAYLOR, E. L., 1942.—“A note on phenothiazine poisoning with special reference to reports of its occurrence in horses.” 54 (9), 95-97.
- c. GRAHAME, T., SLOAN, J. E. N. & MORRIS, P. G. D., 1942.—“Observations on phenothiazine as an anthelmintic in horses and with reference to blood examination.” 54 (22), 213-214.
- d. HOLMAN, H. H. & PATTISON, I. H., 1942.—“Observations on the blood-picture of sheep treated with phenothiazine.” 54 (22), 215-216.
- e. OTTAWAY, C. W. & BINGHAM, M. L., 1942.—“Parasitic aneurysm of the renal arteries of the horse.” 54 (22), 216-217.

(30a) Taylor points out that healthy adult cattle are practically immune to *Dictyocaulus*, so that it is advantageous if they graze along with susceptible calves. Most if not all good results of treatment are due to improved housing and feeding of the sick animal, thus building up resistance. Dry weather, though in itself unfavourable to infective larvae, may encourage prolonged and widespread grazing in cattle leading to heavy infestations. Larval development is increased if faeces are mixed with soil; places where cattle congregate therefore favour development since the faeces are trampled into the soil. Most larvae on a pasture die in a few weeks but a small percentage may survive 12 months or more. In a discussion arising out of the foregoing, Taylor stated that he was trying phenothiazine suspensions intratracheally against *Dictyocaulus*. The ploughing campaign might lead to overcrowding of cattle pastures.

B.G.P.

(30b) Taylor briefly reviews and summarizes the published records of phenothiazine poisoning in horses, and shows that it is a question of phenothiazine sensitivity, in a small proportion of animals, leading to an acute haemolytic anaemia which may be too severe to be checked by transfusion.

B.G.P.

(30c) Grahame et al. have carried out a critical test with phenothiazine in 4 Army horses (worms counted in faeces after treatment and at post-mortem), and have examined the pre- and post-treatment blood of two of them. Counts show a very high efficacy against small strongyles (mainly *Trichonema*) which were present in large numbers, 10,000 to 60,000. Efficacy was about 85% against large strongyles and about 50% against immature *Oxyuris*. *Strongylus* living in aneurysms were not affected. Blood examinations, before dosing and 1, 2, 3, 5 and 6 days after, show that there is an increase in the red cells which is sustained for at least a week. White cells and also haemoglobin rise to a peak in about 3 days and return to normal. Although no eosinophilia was found in jugular blood, one horse showed local eosinophilia in intestine, liver, and lungs.

B.G.P.

(30d) Holman & Pattison have examined the blood of 16 lambs on each of 3 days before and 7 days after treatment with phenothiazine, extending to the 27th day after dosing. Eight more lambs were examined on the 21st day, and 31 on the 34th day after dosing. Doses ranged from 5 g. to 160 g. There was no important difference between treated and untreated lambs.

B.G.P.

(30e) Ottaway & Bingham report large aneurysms of the intra-renal portions of both renal arteries in an 18-months mare which also showed aneurysms of the anterior mesenteric, coeliac, and other arteries.

B.G.P.

## 31—Zeitschrift für Fleisch- und Milchhygiene.

- a. CYTLAK, K., 1942.—“Zur Untersuchung der Schweine auf Finnen.” 52 (7), p. 73.
- b. SCHMID, F., 1942.—“Zur Methodik des Trichinennachweises in der Fleischuntersuchung.” 52 (7), 73-76.
- c. KOLBE, F., 1942.—“Spontane Trichinose bei Tieren.” 52 (9), 99-101.



- d. MÜLLER, 1942.—“Zur Untersuchung der Schweine auf Finnen in den Ostgebieten.” 52 (11), 121-122.  
 e. SCHROEDER, 1942.—“Über Untersuchungsergebnisse bei der Fleischbeschau.” 52 (11), p. 122.  
 f. KOLBE, F., 1942.—“Ist ein Trichinenvorkommen durch Aufnahme von Darmentleerungen möglich?” 52 (11), 124-125.

(31a) Cytlak emphasizes the importance of examining the cervical muscles when inspecting pig carcasses for cysticerci. He quotes a case in which, after the usual predilection sites had proved negative, cysticerci were found in the cervical muscles. A.E.F.

(31b) Schmid discusses the value of the artificial digestion method in *Trichinella* diagnosis and its application to meat inspection. He reports on his own experiments, using guinea-pigs, and concludes that the digestion method should be of value in detecting *Trichina* infections. A digestion fluid containing 0.9% pepsin and 0.7% hydrochloric acid gave the best results. A.E.F.

(31c) Kolbe reviews the literature on natural *Trichinella* infections in the pig, cat, dog, polar bear, and fox. He points out how little is known of the clinical picture of *Trichinella* in animals, although symptoms suggesting trichinellosis occur and the disease in these hosts is by no means always subclinical. A.E.F.

(31d) Müller supplements Cytlak's paper on the inspection of pigs for cysticerci [see above No. 31a] by drawing on his 15 years experience at the Kattowitz abattoir. He stresses the importance of thorough inspection of the tongue, and both psoas muscles. A.E.F.

(31e) The figures for meat inspection at the Lublin (Poland) abattoir for 1941 include *Trichinella* in 94 pigs, *Cysticercus* in 238 cattle and 69 pigs, and the condemnation of 8,421 carcasses infected with liver-fluke. [The figures for animals examined are not given.] A.E.F.

(31f) Kolbe draws attention to the necessity for adequate cooking of slaughter house and kitchen waste before feeding it to pigs. Flesh known to be trichinous must be burned or buried and never put on dung heaps. Recent work has shown that the transmission of *Trichinella* by faeces, although possible, is of very little practical importance. The paper reviews earlier literature on this subject. A.E.F.

### 32—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. SECK, P. & SCHUMACHER, W., 1942.—“Ein Beitrag zur Abtötung von Spulwurmeiern.” 148 (6), 314-317.

(32a) Against embryonated and unembryonated eggs of *Parascaris equorum*, Seck & Schumacher have used the anti-coccidial substance “Eimeran”, a chlorinated coal-tar product containing organic sulphur. In 5% solution Eimeran killed unembryonated eggs in 2½ minutes, and killed 97% of embryonated eggs in 7½ minutes. B.G.P.

### NON-PERIODICAL LITERATURE

33—Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry in India. Proceedings of the Fourth Meeting held at Izatnagar (Bareilly), 18th to 20th November, 1940. Delhi, 1942, 250 pp.

- a. DATTA, S. C. A., 1942.—“The utilisation of the chemotherapeutic resources of India in the field of veterinary zoology.” pp. 119-124.  
 b. BHALERAO, G. D., 1942.—“Recent advances in our knowledge of important helminthic infestations in sheep and goats.” pp. 144-149.  
 c. RAO, M. A., 1942.—“The most practical methods of controlling nasal schistosomiasis in India.” pp. 175-183.

(33a) Many species of *Artemisia* grow in the Himalayas and are exported from India. They yield santonin equal to that of Russian origin. Thymol occurs in many Indian plants, including *Thymus vulgaris*. Other well known anthelmintics found in India are Areca nut, Kamala, chenopodium and pomegranate root. R.T.L.

(33c) The methods advocated by Rao are (i) treatment by antimony tartrate at the rate, per 100 lb. body weight, of 1.5 grains daily for 6 days or 2.5 grains every alternate day, (ii) prevention of infection and of re-infection, and (iii) propaganda. It is suggested that worm embolism may be the chief cause of death. R.T.L.